

REMARKS

Claims 1 and 13 have been amended and claims 23 to 27 have been canceled.

Claims 1 to 22 remain active in this application.

Claims 1 to 22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (U.S. 6,391,733). The rejection is respectfully traversed.

Claim 1 requires the step of implanting a second dopant into the substrate beyond the LDD junction depth to form a source/drain region, the implantation of the second dopant of sufficient dopant concentration to overpower a portion of the LDD remote from the channel and a substantial portion of the first dopant to define a floating region of the first dopant completely within the LDD region, the source/drain region and the surface and remote from the channel region with reduced dopant concentration relative to the dopant concentration of the LDD region. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claims 2 to 12 depend from claim 1 and therefore define patentably over Fisher for at least the reasons stated above with reference to claim 1.

In addition, claim 2 further limits claim 1 by requiring that the floating region further comprise a floating ring substantially self-aligned with an edge of a gate of the transistor structure. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 3 further limits claim 1 by requiring forming the LDD region by implanting a dose of a third dopant that is greater than a dose of the first dopant. No such step is taught or suggested by Fisher in the combination as claimed.

Claim 4 further limits claim 3 by requiring that the dose of the first dopant be about twenty-percent or less of the dose of the third dopant. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 5 further limits claim 3 by requiring that at least one of the implantation of the first dopant and the implantation of the third dopant employing tilted angle implants to enhance an amount of overlap between a gate structure of the transistor structure and the LDD region. No such step is taught or suggested by Fisher in the combination as claimed.

Claim 6 further limits claim 3 by requiring that the dose of the second dopant be greater than the dose of the third dopant. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 7 further limits claim 3 by requiring that the implantation of the third dopant further comprise implanting a dose of an n-type dopant in a range from about $1e^{13}$ cm² to about $5e^{14}$ cm², and that the implantation of the first dopant further comprise implanting a dose in a range from about $1e^{12}$ cm² to about $5e^{14}$ cm² of a p-type dopant.. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 8 further limits claim 1 by requiring that the transistor structure be a complimentary metal oxide semiconductor (CMOS) structure that includes a gate having a side edge portion, the floating region being substantially aligned with the side edge portion of the gate. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 9 further limits claim 8 by requiring that the CMOS structure be an n-channel CMOS structure, the first dopant forming a shallow region in the LDD region that comprises a p-type dopant. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 10 further limits claim 9 by requiring that the first dopant comprise boron, and the floating region further comprise a boron floating ring substantially aligned with side edge portion of the gate. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 11 further limits claim 8 by requiring that the CMOS structure be a p-channel CMOS structure, the first dopant defining a shallow region that comprises an n-type dopant. No such step is taught or suggested by Fisher in the combination as claimed.

Claim 12 further limits claim 1 by requiring the step of forming a gate structure above the substrate, the LDD region and the source/drain region being formed in the substrate generally around the gate structure, the gate structure overlapping at least a substantial portion of the LDD region and the floating ring being substantially aligned with an edge of the gate structure. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 13 requires, among other features, then forming a source/drain region, formation of the source/drain region resulting in forming a floating structure from the shallow region that is located completely within the LDD region, the source/drain region and said surface and generally aligned with the side edge of the gate structure, the floating structure having reduced dopant concentration relative to the doping concentration of the LDD region. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claims 14 to 21 depend from claim 13 and therefore define patentably over Fisher for at least the reasons presented above as to claim 13.

In addition, claim 14 further limits claim 13 by requiring that the LDD region be formed with a dose of a dopant that is greater than a dose of a dopant utilized to form the shallow region. No such step is taught or suggested by Fisher or in the combination as claimed.

Claim 15 further limits claim 14 by requiring that the dose of the dopant that is utilized to form the shallow region be at least approximately twenty-percent less than the dose of the dopant that is utilized to form the LDD region. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 16 further limits claim 13 by requiring that the formation of the LDD region further comprising implanting a dose of an n-type dopant in a range from about $1e^{13} \text{ cm}^2$ to about $5e^{15} \text{ cm}^2$, and the formation of the shallow region further comprising implanting a dose in a range from about $1e^{12} \text{ cm}^2$ to about $1e^{14} \text{ cm}^2$ of a p-type dopant. . No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 17 further limits claim 13 by requiring that at least one of the implantation of the formation of the LDD region and the formation of the shallow region further comprise employing tilted angle implants to increase an amount of overlap beneath the gate structure. . No such step is taught or suggested by Fisher in the combination as claimed.

Claim 18 further limits claim 13 by requiring that the formation of the source/drain region be implemented with a dose of a dopant that is greater than a dose of a dopant utilized to form each of the LDD region and the shallow region. No such step is taught or suggested by Fisher either alone or in the combination as claimed.

Claim 19 further limits claim 13 by requiring that the CMOS structure be an n-channel CMOS structure, the shallow region comprising a p-type dopant. No such step is taught or suggested by Fisher in the combination as claimed.

Claim 20 further limits claim 19 by requiring that the shallow region comprise boron and the floating structure comprise a boron floating ring substantially aligned with the side edge of the gate structure. . No such step is taught or suggested by Fisher in the combination as claimed.

Claim 21 further limits claim 13 by requiring that the CMOS structure be a p-channel CMOS structure, the shallow region comprising an n-type dopant. No such step is taught or suggested by Fisher in the combination as claimed.

Claim 22 clearly sets forth a transistor structure which is not found in Fisher for reasons stated as to claim 13.

In view of the above remarks, favorable reconsideration and allowance are respectfully requested..

Respectfully submitted,



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